

Overview of New Physics Benchmarks

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Goals

- Study wide variety of models
- Make connections across frontiers
- Address challenging questions relevant for setting priorities
- Facilitate wide participation and make this the most impressive Snowmass ever!

Strategy

- Encourage theorists to define models
Signal event generation + parameter ranges
- Encourage experimentalists to do studies
(with “tech support” from theorists)
- Provide common backgrounds
- Establish “workflow” on a reasonable set of models
before trying to do everything
- Welcome all volunteers!

Models

- Complete models (SUSY, RS, UED)
 - Illustrate important ideas
Naturalness, symmetry, spacetime structure,...
 - Provide connections across frontiers
Dark matter, flavor,...
 - Provide compelling detailed examples of what success might look like
- Simplified models
 - Provide easily interpreted parameterization of reach
 - Allow efficient exploration of many signals

Simplified Models

SUSY

SUSY + RPV

R-hadrons

Top partners

General 2HDM

Resonances ($\ell\ell$, qq , VV , ...))

Effective dark matter



We need volunteers to do more!

Twiki: NP group page at

<http://www.snowmass2013.org>

Connections

- Dark matter

SUSY, UED, effective dark matter

- Flavor

RS

(TeV neutrino mass models)



We need volunteers to do more!

Difficult Questions

Address by studying variety of models

- Do we learn more from precision studies of the Higgs, or direct searches at higher energy?

2HDM

VV resonances (composite Higgs)

- What can we learn experimentally about the naturalness of the TeV scale?

SUSY (complete & simplified models)

RS

Top partners

Thank you!